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**PHOTOGRAPHIC
INTERPRETATION
REPORT**

**NATIONAL PHOTOGRAPHIC
INTERPRETATION CENTER**

**TELEVISION AND MICROWAVE
RELAY LINES NORTH OF MOSCOW
USSR**

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TELEVISION AND MICROWAVE RELAY LINES NORTH OF MOSCOW, USSR

1. This is a report on the results of a search on photography for television and microwave radio-relay lines extending northward from Moscow to Cherepovets and Vologda, USSR. The area searched is shown on the map, Figure 1. The search revealed the existence of 40 stations and one probable station, locations of which are shown on the map. Each of the stations is described briefly in Table 1 which is keyed to Figure 1. Thirteen of the stations were newly identified as a result of this study. Also, a newly constructed TV tower at Gryazovets (item 11, Figure 1 and Table 1) and a TV tower and building under construction at Nerekhta (item 15) were observed for the first time.

2. Photography of good interpretability covering the entire search area [] 25X1 [] was available for this study. Twelve stations were also covered by 25X1 photography [], nine with photography of good interpretability and 25X1 of fair interpretability. The photography used was obtained during the period April 1970 through September 1971.

3. Brief descriptions of the 41 stations covered by this report are presented in Table 1. Also listed in the table are the geographic coordinates of each station, BE numbers, dates of the photographs used in the analysis, numbers and types of antennas at each station, and the probable orientation of each antenna.

4. Reflecting R60/120 microwave dish antennas were identifiable at 18 stations, and radiating R60/120 microwave dish antennas were identifiable at 12 stations. Probable R60/120 dish antennas were observed at seven stations. An example of the reflecting type R60/120 antennas, as seen at Rogachevo Radio Relay Station (item 2, Figure 1), is presented on Figure 2. An example of radiating type R60/120 antennas, as seen at Buy Radio Relay Station (item 25), is presented on Figure 3. An example of a TV tower showing the positions of R60/120 reflecting dish antennas, as seen at Yaroslavl Radio Relay and TV and FM Broadcast Center (item 7), is presented on Figure 4.

5. R600 horn antennas were identifiable at five stations. An example of an R600 horn antenna mounted on a masonry tower, as seen at Peshki Radio Relay Station (item 34), is presented on Figure 5.

6. A previously reported radio relay station at Redkino (56-41-55N 036-20-15E) was reviewed during this study. Photography of the installation revealed only two fenced buildings. No mast could be identified. Therefore, this station is not included among those listed in Table 1.

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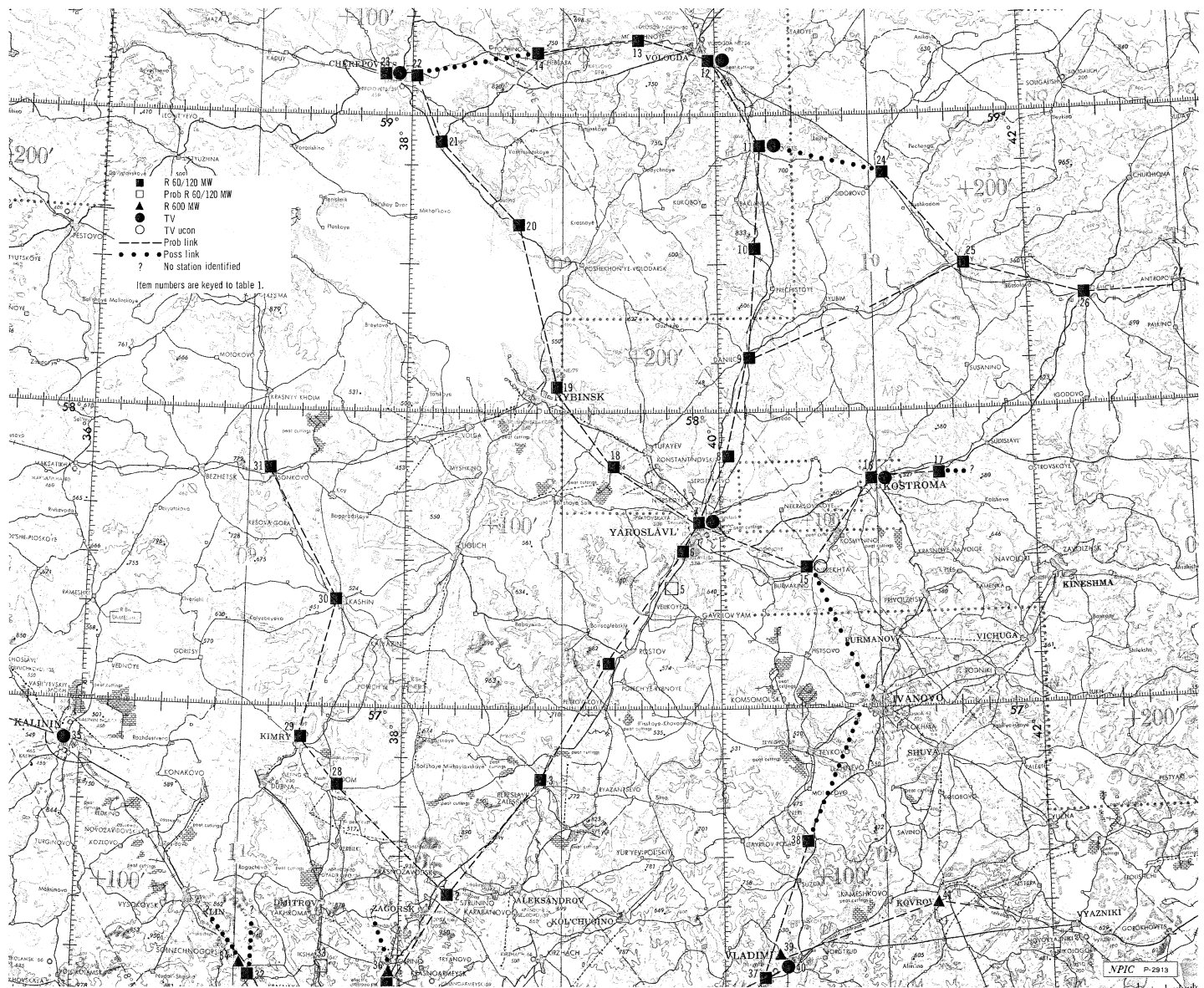


FIGURE 1. LOCATIONS OF TELEVISION AND RADIO RELAY STATIONS NORTH OF MOSCOW, USSR

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Table 1. Television and Radio Relay Stations North of Moscow, USSR (Item numbers are keyed to the map, Figure 1)

Item	Station	Coordinates	Antennas No	Type	Probable Orientation	Remarks	Item	Station	Coordinates	Antennas No	Type	Probable Orientation	Remarks
1	Koshehkov Radrel ¹	56-03-50N 037-56-10E	2	R60/120 ²	NNE, SSW	Self-supporting lattice tower; collocated with Pushkino Radcom & AM BC Xmr sta	19	Rybinsk Radrel	58-08-10N 038-56-03E	2	R60/120 ³	N, S	Self-supporting lattice tower; control bldg; FORK REST is collocated with station.
2	Rogachevo Radrel ¹	58-23-10N 038-18-30E	3	R60/120 ²	NE, SSW, NW	Guyed lattice mast, control bldg, 2 support bldgs. (Figure 2)	20	Yermekovo Radrel ¹	58-37-30N 038-43-00E	2	R60/120 ³	NW, S	Guyed lattice tower, control bldg.
3	Perestavl Zaleskiy Radrel	58-44-31N 038-52-50E	2	R60/120 ²	NE, SW	Guyed lattice mast & control bldg.	21	Mykasa Radrel	58-54-00N 038-11-00E	2	R60/120 ³	NNW, SE	Guyed lattice mast, control bldg.
4	Rostov Radrel	57-09-40N 039-18-00E	2	R60/120 ²	NE, SW	Guyed lattice mast & control bldg.	22	Chernopets Radrel	59-07-48N 038-51-20E	2	Prob R60/120 ³	SSE, W	Short mast, control bldg.
5	Yaroslavl Radrel	57-24-55N 039-41-40E	2	Prob R60/120 ³	--	Self-supporting lattice tower, control bldg, support area with 5 bldgs & a large revetment.	23	Chernopets TV/Radrel	59-07-30N 037-53-10E	1	R60/120 ³	E	Self-supporting lattice tower w/TV antenna, large 2-story broadcast bldg.
6	Yaroslavl Radrel SW	57-31-20N 039-45-30E	2	R60/120 ²	NNE, SW	Guyed lattice mast, control bldg, support bldg.	24	Vokhtoga Radrel	58-48-10N 041-03-48E	2	Prob R60/120 ³	NW, SE	Guyed lattice mast, control bldg, support bldg.
7	Yaroslavl Radrel & TV & FM BC ctr ¹	57-37-50E 039-51-50E	4	R60/120 ²	NNE, SE, SSW, NW	Self-supporting lattice tower w/TV antenna, 2 control/ broadcast bldgs. (Figure 4)	25	Buy Radrel	58-30-55N 041-35-20E	3	R60/120 ³	NW, ESE, SW	Guyed lattice mast, control bldg, 2 support bldgs. (Figure 3)
8	Tolbukhino Radrel	57-51-00N 040-02-10E	2	R60/120 ²	NNE, SSW	Guyed lattice mast, control bldg, support bldg.	26	Galich Radrel ¹	58-23-10N 042-21-50E	2	Prob R60/120 ³	NNW, E	Guyed lattice tower, control bldg, support bldg.
9	Danilovo Radrel	58-10-28N 040-11-00E	2	R60/120 ²	N, SSW	Guyed lattice mast, control bldg, support bldg.	27	Antropovo Prob Radrel ¹	58-23-40N 042-50-55E	--	Prob R60/120 ⁴	--	Guyed lattice tower, prob control bldg, 2 support bldgs.
10	Skarino Radrel	58-32-30N 040-13-10E	1	R60/120 ³	NE	Additional dish at midpoint on mast.	28	Taldom Radrel ¹	56-43-50N 037-38-40E	2	R60/120 ³	NW, SE	Self-supporting lattice tower, control bldg; collocated with Taldom Tropo- scatter Sta
11	Gryazovets TV/Radrel	58-53-12N 040-15-45E	2	R60/120 ²	N, S	Guyed lattice mast, control bldg.	29	Kinny Radrel ¹	56-53-00N 037-22-20E	2	R60/120 ³	N, SE	Self-supporting lattice tower, control bldg.
12	Vologda TV/Radrel	59-11-10N 039-56-30E	2	R60/120 ²	NNW, S	Guyed lattice mast, control bldg; also, self-supporting lattice tower w/TV antenna, control bldg, support bldg & support area of 5 bldgs, prob earth-mounded structure.	30	Kashin Radrel	57-21-32N 037-35-15E	2	R60/120 ³	NNW, S	Guyed lattice mast, control bldg.
13	Dikaya Radrel ¹	59-15-00N 039-29-30E	2	R60/120 ²	SSE, WNW	Guyed solid mast w/TV antenna, control bldg, support bldg; collocated with Vologda Tropo- scatter Sta	31	Sonkovo Radrel ¹	57-47-35N 037-10-20E	2	R60/120 ³	SSE ⁵	Guyed lattice tower mast, control bldg.
14	Chereba Radrel	59-12-45N 038-50-10E	2	R60/120 ²	ESE, W	Guyed lattice mast, control bldg, support bldg.	32	Lozhki Radrel & Radcom Transmitter Site A	56-05-02N 037-06-37E	2	R60/120 ²	N, S	Self-supporting lattice tower, control bunker.
15	Nerezhitsa TV/Radrel	57-28-33N 040-33-05E	2	R60/120 ²	E, W	Guyed lattice mast, control bldg.	33	Chernaya Radrel ¹	56-06-30N 037-32-55E	2	Prob R60/120 ³	NW, SE ⁶	Self-supporting lattice tower; collocated with control bldg for Moika/Chernaya HF Commo Fac
16	Kostroma TV/Radrel ¹	57-46-10N 040-57-05E	3	R60/120 ²	NW, SE, NE	Guyed lattice mast, control bldg; TV Sta ucom, self-supporting lattice tower on control broad- cast bldg.	34	Peshki Radrel	56-08-40N 037-03-50E	3	R600	NW, S ⁷	Masonry tower, control bldg w/2 wings at 45 deg angle. (Figure 5)
17	Petravayev Radrel	57-47-45N 041-23-45E	2	R60/120 ²	E, SW	Self-supporting lattice tower w/TV antenna, control broadcast bldg.	35	Kalinin TV/Radrel	56-51-27N 035-55-08E	--	None ident	--	Self-supporting lattice w/TV antenna, control bldg.
18	Varegovo Radrel	57-48-33N 039-20-15E	2	R60/120 ²	NW, SE	Guyed lattice mast, control bldg.	36	Kushcheykovo North Radrel ¹	56-05-15N 037-56-00E	2	R600	NNW, SSE	Masonry tower, control bldg w/2 wings at 45 deg angle.
			2	R60/120 ²	N, S	Second pair of dishes middle of mast.	37	Yuryevets Radrel	56-05-52N 040-14-00E	2	R60/120 ²	NNE, SSW	Guyed lattice mast, control bldg.
			2	R60/120 ²	E, SW	Self-supporting lattice tower w/TV antenna, control broadcast bldg.	38	Torchino Radrel	56-33-04N 040-32-38E	2	R60/120 ³	NNE, SSW	Guyed lattice mast, control bldg.
			2	Prob R60/120 ³	E, W	Guyed lattice mast, control bldg.	39	Vladimir Radrel	56-09-35N 040-23-15E	2	Prob R600	ENE, WSW	Guyed solid mast, control bldg, support bldg.
			2	R60/120 ²	NW, SE	Guyed lattice mast, control bldg.	40	Vladimir TV Rtl & Radrel & FM Broadcast	56-08-28N 040-24-42E	--	None ident	--	Self-supporting lattice tower w/TV antenna, broadcast bldg.
			2	R60/120 ²	N, S	Second pair of dishes middle of mast.	41	Kovrov Radrel	56-20-32N 041-19-38E	2	R600	WSW, ESE	Guyed solid mast, control bldg, support bldg.

1. Newly identified as a result of this study.
2. Reflecting type of R60/120 dish antenna.
3. Radiating type of R60/120 dish antenna.
4. Elements determining orientation could not be seen.
5. Elements determining orientation of second antenna
could not be seen.
6. Direction given is based on orientation of arms on tower.
7. Two R600 horn antennas have same orientation.

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REFERENCES

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MAPS OR CHARTS

ACIC Chart, Series 200, Sheets 0154-2,8,9, 12-15, 17-19, 22-24, scale 1:200,000

RELATED DOCUMENT

RCA Service Company. Contract F 33657-69-C-0010, *Soviet Antennas, A Contribution to the DIA Communications Equipment Handbook (U)*, 31 Dec 68 (SECRET)

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REQUIREMENT

NPIC/IEG/WGD/SSB Project 251238

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